Fig. 1

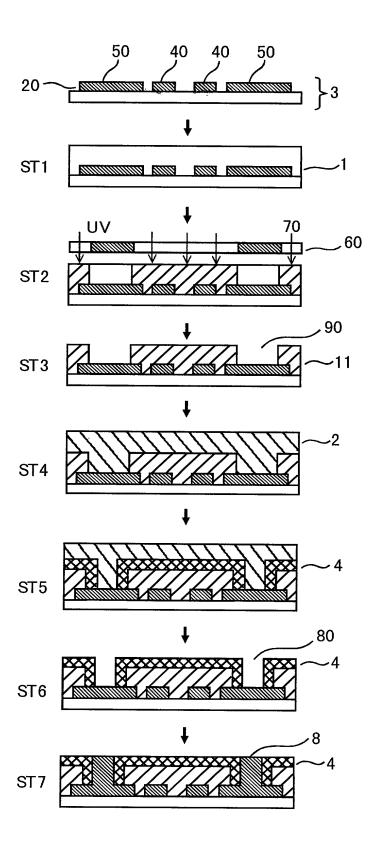


Fig.2

polyacrylic acid

polyvinyl acetal

polyvinyl pyrrolidone

polyethyleneimine

polyethylene oxide

HO+CH2-CH2-O+H

styrene-maleic acid copolymer polyvinylamine resin polyallylamine

N C

oxazoline group-containing water-soluble resin

Fig.3

$$R_1 N - C N R_1$$
 $R_2OH_2C N - C - N R_1$
 CH_2OR_2

R1=H,CH3,CH2OMe,CH2OEt R2=H,CH3,Et

ureaderivatives

alkoxymethylurea

ROH₂C
$$N$$
CH₂OR
ROOR
R=H,CH3,Et

N-alkoxyethyleneurea

ethyleneurea

ethyleneureacarboxylic acid

R=H,CH3,CH2OMe,CH2OEt

 R_2OH_2C N N N N CH_2OR_2 R_1 N CH_2OR

R1=H,CH3,CH2OMe,CHOEt R2=H,CH3

melamine derivatives

alkoxymethylmelamine derivatives

$$0 = \underbrace{\begin{array}{c} HN \\ HN \\ NH \end{array}}_{H} NH$$

benzoguanamine

glycoluril

Fig.4

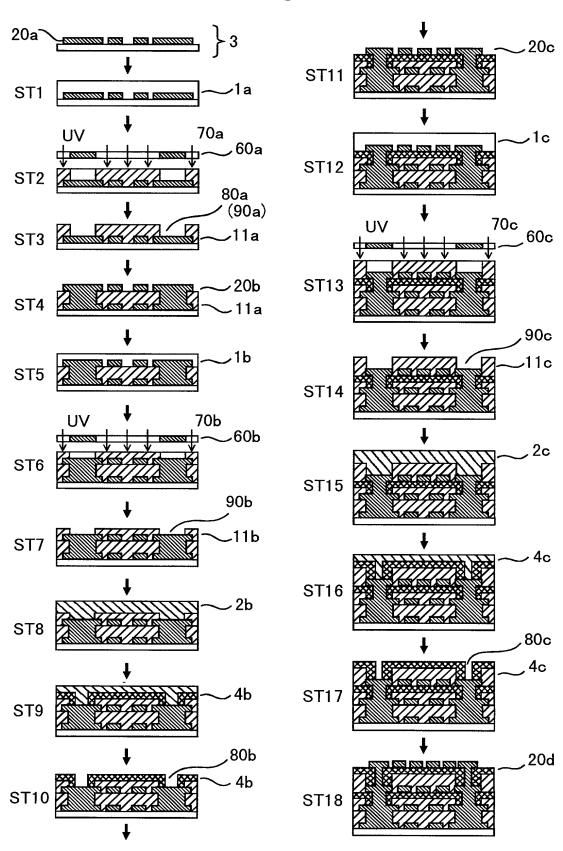


Fig.5

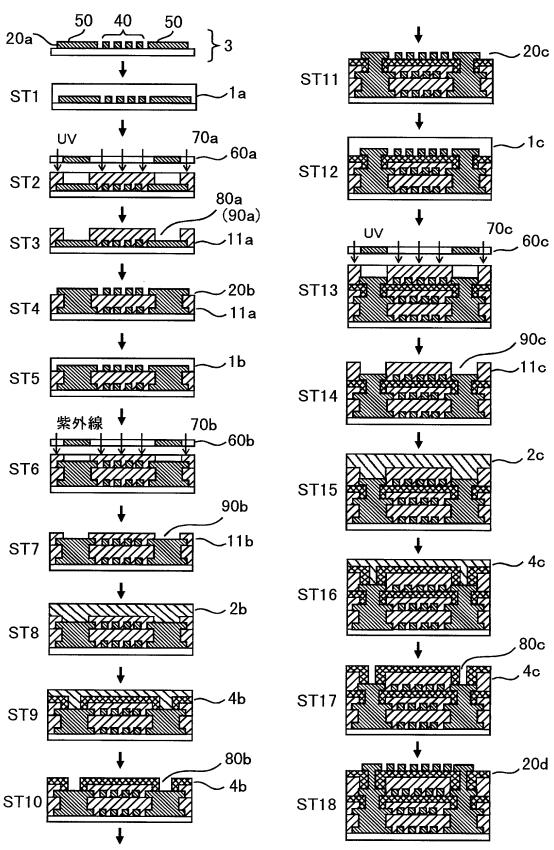


Fig.6

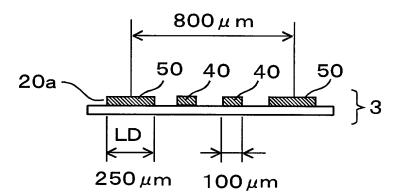


Fig.7

Evaluation Board A

Evaluation Board B

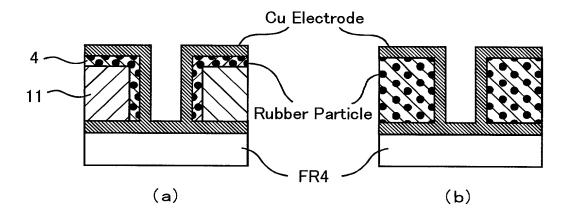


Fig.8 PRIOR ART

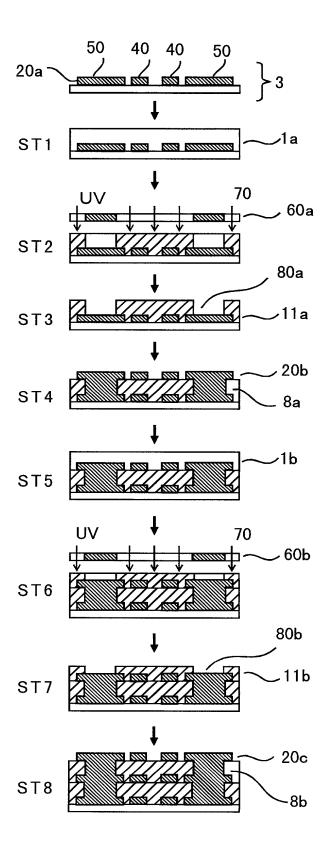


Table 1

Condition	Diameter of the Holo	
Non Heat Treatment		
120°C ∕ 60min	130 μ m	
130°C ∕ 30min	100 μ m	
140°C∕30min	70 μ m	

Table 2

Condition	Diameter of Via-Hole	
Non Heat Treatment	150 μ m	
110℃ ∕ 10min	120 μ m	
110°C∕20min	100 μ m	
110°C∕30min	80 μ m	
135℃ ∕ 40min	40 μ m	

Table 3

Condition	Diameter of Via-Hole	
Non Heat Treatment	150 μ m	
110℃/15min	120 μ m	
120℃/15min	100 μ m	
130℃ ∕ 15min	80 μ m	
135℃/20min	45 μ m	

Table 4

Condition	Diameter of Via-Hole	
Non Heat Treatment	100 μ m	
120°C∕30min	30min 96 μ m	
130°C∕30min	90 μ m	
140°C∕30min	Dmin 83 μ m	

Table 5

Sample	Dielectric Constant	Thermal Expansion Vertical 80~120°C	Peel Strength (90° Peel 25°C
Evaluation Board A	4. 5	40ppm	980kg/cm
Evaluation Board B	4. 8	55ppm	970kg/cm